

**NORTHEAST CONSORTIUM
PROJECT DEVELOPMENT AWARD ANNUAL REPORT**

TESTING A FIXED GEAR RESOURCE SURVEY METHOD FOR INSHORE AREAS



SUBCONTRACT #

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PROJECT OBJECTIVES AND SCIENTIFIC HYPOTHESIS

The main goal of this project is to qualitatively assess the effectiveness of a fyke net as a multispecies fish assessment tool for inshore areas of the Gulf of Maine. It was designed to test the hypothesis that this type of gear can effectively capture a representative sample of fish present in areas where hard bottom and/or the presence of fixed gear make it impossible to sample with trawl gear.

No changes to the objectives or scientific hypothesis have been made.

METHODS AND WORK PLAN

A few changes were made to the methods and work plan described in the proposal, as follows.

1. Gear construction and field sampling rescheduled.

As detailed in the progress report submitted in December 2006, the timeline for constructing and testing the gear was shifted forward in time. Originally, project partners had hoped to construct the experimental fyke net to be tested in this experiment during the winter of 2005/2006, and to conduct field testing of the gear in the spring and fall of 2006. However, it was necessary to reschedule gear construction for the winter of 2006/2007 and field testing for spring and fall of 2007.

2. Gear design modifications.

Comments on this proposal from NEC reviewers suggested that the gear built should be larger than the estimated dimensions given in the proposal. While these comments were noted and appreciated, project participants were concerned that if the gear was too large it would be difficult to haul and get onboard the vessel with a lobster pot hauler. Thus, the experimental fyke net gear built by project participant Larry Knapp during the winter of 2006/2007 is very close to the estimated dimensions given in the proposal.

This experimental fyke net consists of 2 cylindrical traps connected by a mesh leader. The two cylindrical traps are approximately 15 feet long and 3 feet in diameter. The gillnet leader

between the two trap is around 40 feet long. The mesh size of the netting that comprises both the traps and the leader is 4 inches, stretched mesh length. The original plan was to use shrimp netting material (1 ¾ inches), but project partners were worried that this netting would be too fragile and might break under the load of a large catch.

After two days of field testing in spring 2007, project participants now believe that the gear size can be increased without preventing successful hauling with the lobster pot hauler on the vessel. The gear is significantly lighter than anticipated, due in part to the light material (plastic) Knapp was able to find for the hoops in the traps. This finding, plus the light catches encountered during spring field testing, have enabled project partners to plan to increase the size of the gear prior to field trials in the fall of 2007.

3. Number of days of field testing, spring component.

Although 4 days of field testing were originally scheduled for the spring component of field testing, only 2 days were completed. Due to colder than usual water temperatures, low catches and a desire to increase the size of the experimental gear, project participants decided to delay further field testing until fall 2007. Project participant Larry Knapp will modify the gear during the summer of 2007, and the 2 days of field testing originally scheduled for the spring will be added to the fall field testing component.

WORK COMPLETED TO DATE

Since a progress report was submitted for this project in December 2006, project participants have completed experimental gear construction and conducted the spring component of field testing.

1. Purchase materials and build experimental fyke net gear.

Project participant Larry Knapp researched building materials and gear design, purchased the necessary materials and built the gear according to the specifications outlined in the proposal during the winter of 2006/2007. This fyke net was modeled after a smaller, older fyke net that he had fished previously in and around local rivers. Another Boothbay fisherman, dragger/seiner Bill Sherman, who has also used fyke nets in the past, assisted with gear design and construction. The fishermen attempted to construct as large a fyke net as possible while still making it possible to haul the gear onboard using a lobster trap hauler.

2. Complete and submit an application for a special license from the Maine Department of Marine Resources (ME DMR) to conduct this research in Maine state waters.

In April 2007, the project leader submitted an application to the ME DMR for a special license that would grant project participants several regulatory exemptions and allow us to test the fyke net in Maine state waters in and around Boothbay Harbor. This request was granted in early May 2007 and a special license was issued for the project.

3. Complete spring field testing component.

Two days of field testing were completed in the spring of 2007. The first day of field testing occurred on May 21. Project participants set the gear early in the morning and hauled it just before noon for a total soak time of around 3 hours. The water depth at this location was about 37 fathoms; the water temperature was 9° C. There was no catch.

The second day of field testing was completed on June 10th. This time, the gear was set in the afternoon, allowed to soak overnight and hauled the next morning. Total soak time was around 17 hours. The water depth was around 9 fathoms and water temperature was 12.5° C. During this set, only one lobster, a female with eggs, was captured in the gear.

RESULTS TO DATE

Project participants believe the lack of catch during the first day of field testing was likely due to a combination of factors including colder than usual water temperatures (9° C), a short soak time (3 hours), and set location. This type of gear relies on fish actively moving around in order to encounter the gear, follow the leader and end up in one of the traps at either end. Due to the cold water there were likely less fish around at this time of year than usual and those that were around were likely not moving around as much as they would have been if warmer water, and thus more prey, been more abundant. Although project participants were aware of the colder than usual conditions, the timing of this set was planned to coincide with the operations of the ME/NH Inshore Trawl Survey, which was in the same area 3 days prior.

The short soak time also likely contributed to the lack of catch. Since this was the first time the gear was set project participants were not sure what to expect and thus planned a short soak time. Set location was probably also a factor in the lack of catch. The location of this set was also chosen because it was very close to one of the tow locations for the spring 2007 ME/NH Inshore Trawl Survey. However, the depth (37 fm) was likely too deep for this type of gear to be effective. In the future, shallower set locations will be sought out.

Project participants believe that the lack of catch in the second day of field testing was likely due to set location and small size of the gear. Nine fathoms of water is probably still too deep for this type and size gear. Following this day of field testing project participants agreed that increasing the size of the gear would be both possible and desirable. It was decided to delay further field testing until this occurs.

DATA

Since only 2 out of 8 scheduled days of field testing have occurred to date, no data has yet been submitted to the NEC's Fisheries and Ocean Database. The complete data set developed by this project will be submitted electronically at the conclusion of the study.

IMPACTS AND APPLICATIONS

This project aims to address the need for better fine-scale information on resource status in inshore areas identified by the scientific community, with a focus on the inshore waters of mid-coast Maine. While the establishment of the ME/NH Inshore Trawl Survey certainly provides an abundance of information towards this goal, the use of otter trawl gear as a survey technique has certain inherent limitations. For one, this method is not particularly effective in complex rocky habitat with substantial vertical structure. In addition, the presence of lobster traps and other fixed gears often limit the number and location of sampling stations for the trawl survey. These weaknesses introduce considerable, although unavoidable, bias into the survey. This study will explore the potential for using fyke nets as a supplementary resource survey method for inshore areas. This study may also help identify species and/or population components for which the trawl survey does not seem to be capturing representative samples.

The fishing community will undoubtedly benefit from the development and evaluation of alternate resource assessment techniques. Improved resource assessment methods will ultimately lead to more accurate and reliable population abundance and distribution estimates. This will provide better information on which fishermen and fishing communities can base business and management decisions.

PARTNERSHIPS

Primary participants in this project include lobsterman Larry Knapp and project leader Catherine Salerno. Collaboration between these parties has been excellent. Mr. Knapp is responsible for creating the initial project idea, gear design and methods. Ms. Salerno assisted Knapp in refining the project goals and methods.

Knapp brought to the project a fishermen's knowledge of how a similar version of this gear was fished commercially in the past in local rivers for American eels. Salerno provided technical guidance on how to refine the design to fish it in coastal locations and target a wider variety of species based on a literature search and personal communication with individuals who have experience using the same type of gear with similar objectives. Knapp purchased the necessary materials and constructed the gear. Both Knapp and Salerno participated in the two days of field testing in spring 2007.

Bill Sherman, a colleague of Knapp's from Boothbay, Maine, assisted with gear design and construction based on his previous experience targeting American eels with smaller fyke nets.

PRESENTATIONS

There have been no presentations relating to this project to date.

STUDENT PARTICIPATION

There has been no student participation in this project to date.

PUBLISHED REPORTS AND PAPERS

There have been no published reports or papers relating to this project to date.

IMAGES

A few images from the first day of field testing this gear have been submitted with this report as separate files.